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EXAMINER

CHAU, COREY P

ART UNIT PAPER NUMBER

2644

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,510

Applicant(s)

NAKATANI, EIJI

Examiner

Corey P Chau

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 6) ☐ Other: see 1/11/03

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference 19, on page 9, line 27. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to because output of band-pass circuit 11R to matrix surround circuit 1 as described in specification page 12, lines 5-6 is not shown in drawing. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The Abstract discloses exceed 150 words.

4. The disclosure is objected to because of the following informalities: on page 10, line 33, the specification discloses "acs" which is assume to be a misspelling of the word "acts".

Appropriate correction is required.

5. Claims 1, 2, 4, 5, and 7 are objected to because of the following informalities: misspelling of "interlockingly". Appropriate correction is required.

Claim Objections

6. Claims 4, 5, and 6 are objected to because of the following informalities: the preamble "reproducing device" is inconsistent with the preamble of Claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5197099 to Hirasawa in view of U.S. Patent No. 5418856 to Okamoto.

9. Hirasawa discloses audio reproduction apparatus that provides surrounded audio effect produced by two loudspeakers (i.e. two-channel audio signal controller) consisting of an audio demodulator, first and second signal-processing circuits (Figs. 2A, 2B, and 3, reference 16 and 19), first and second switches (i.e. switching on and off of surround circuit) (Figs. 2A, 2B, and 3, reference 17 and 20), first and second summing circuits (i.e. surround circuit) (Figs. 2A, 2B, and 3, reference 18 and 21), and R- and L- channel amplifiers. In a monaural broadcast, a dual monaural broadcast, or a stereo broadcast, only the R-channel and L-channel audio signals are present, the signals are fed through the first and second summing circuits, and reproduced through the right and left loudspeakers. In a 3-1 broadcast, the R-channel and L-channel audio signals are heard from the right and left loudspeakers as before (column 4, line 55 to column 5, line 10). The C-channel audio signal is heard from both the right and left loudspeakers having been processed by the first signal-processing circuit so that it appears to come from a point midway between these two loudspeakers in front of the listener. The S-channel audio signal is heard from both the right and left loudspeakers having been processed by the second signal-processing circuit so that it appears to come from a point behind the listener. The listener thus experiences a surrounded sensation even though all the sound is produced by only two loudspeakers. A switch controller (i.e. controlling section

for switching on and off the surround circuit and the band-pass circuits) disposed on a pushbutton panel has three buttons: a STEREO button, a CENTER button, and a SURROUND button. The STEREO button controls the audio demodulator, when the STEREO button is depressed, the R-channel and the L-channel audio signals are sent to separately to the first summing circuit and the second summing circuit (i.e. turning off both signal-processing circuits and summing circuits) ; when the STEREO button is not depressed, the R-channel and L-channel audio signals are combined and the combined signal is sent to both the first summing circuit and the second summing circuit. Since only two loudspeakers are discussed, the CENTER and SURROUND button will not be depressed. Therefore, the first switch is switched on and the C-channel audio signal is reproduced through the right and left loudspeakers (column 5, line 44 to column 6, line 20). The S-channel audio signal is reproduced the same way. The apparatus of Hirasawa does not disclose a band pass circuit. Okamoto discloses a stereo signal generator contains filters (i.e. band-pass circuits) that may be set to the characteristics of a band-pass filter and a band-eject filter having a specific center frequency f_c , and control of the sound volume balance only in the particular frequency band may allow only the localization of the sound in that frequency band to be controlled (Fig. 8; column 5, lines 24-30). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Hirasawa with the teaching of Okamoto to incorporate the filters of Okamoto to the signal-processing circuits of Hirasawa wherein the filters may be set to the characteristics of a band-pass filter and a band-eject filter having a specific center frequency f_c , and control of the

sound volume balance only in the particular frequency band may allow only the localization of the sound in that frequency band to be controlled. Therefore, the filters of Okamoto can be used with the signal-processing circuit to obtain a C-channel audio signal is heard from both the right and left loudspeakers having been processed by the first signal-processing circuit so that it appears to come from a point midway between these two loudspeakers in front of the listener and a S-channel audio signal is heard from both the right and left loudspeakers having been processed by the second signal-processing circuit so that it appears to come from a point behind the listener.

10. All elements of Claim 2 are comprehended by Claim 1. Claim 2 is rejected for the reasons stated above apropos of Claim 1.

11. Regarding Claim 3, Hirasawa as modified shows a frequency band about 400 Hz to 7 kHz (Okamoto Fig. 8)

12. Claims 4, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5197099 to Hirasawa in view of U.S. Patent No. 5418856 to Okamoto as applied to claims 1, 2, and 3 above, and further in view of U.S. Patent No. 5987417 to Heo et al (hereafter as Heo).

13. Regarding Claim 4, Hirasawa as modified discloses an audio reproducing apparatus, but does not disclose reproducing audio data from a recording medium. Heo discloses a DVD reproducing device that can reproduce high sound quality of audio data with multiple channels (column 11, lines 48-64). Heo's invention provide a device and method for discriminating a DVD video (i.e. audio data recorded thereon with video data) or audio disk, and reproducing it according to the discrimination result (i.e. disc

determining means for determining whether a disc used as a recording medium is a DVD or another disc) (Fig. 20; column 12, lines 12-15); a device and method for reproducing a DVD audio disk recorded in a linear PCM mode; and a device and method for reproducing a DVD audio disk which stores the compressed audio data (i.e. determining means for determining the type of the extracted multichannel audio data) (Figs. 16, 17, 18, 19, 20, and 21; column 21, lines 14-65; column 22, lines 17-65). The DVD audio disk reproducing device analyzes the audio data reproduced from the disk to thereby generate an audio control signal containing an audio coding mode and a decoder decodes the audio data received after being selected according to the audio coding mode of the audio data. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Hirasawa with the teaching of Heo to have a DVD reproducing device to read video/audio data from a DVD and send the data to Hirasawa's apparatus to reproduce the data at a high sound quality.

14. All elements of Claim 5 are comprehended by Claim 4. Claim 5 is rejected for the reasons stated above apropos of Claim 4.

15. All elements of Claim 6 are comprehended by Claim 4. Claim 6 is rejected for the reasons stated above apropos of Claim 4. The audio decoder of Heo has decoding devices respectively corresponding to a linear PCM, MPEG, AC-3 and compressive coding modes (Fig. 21; column 22, lines 55-57).

16. All elements of Claim 7 are comprehended by Claim 4. Claim 7 is rejected for the reasons stated above apropos of Claim 4. The digital audio formatter of Heo formats the

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decoded audio data in accordance with the transmission format between the digital appliances (i.e. Hirasawa audio reproducing apparatus), and then outputs the formatted data in sync with the control signal output from the timing controller (i.e. extracting multichannel audio data from the recording medium and down mixing) (Heo Figs, 16, 17, 18, 19, 20, and 21; column 21, lines 14-65; column 22, lines 17-65).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to audio reproduction in general:

U.S. Patent No. 6122381 to Winterer.

U.S. Patent No. 5912976 to Klayman et al.

U.S. Patent No. 4024344 to Dolby et al.

U.S. Patent No. 6052470 to Mouri.

U.S. Patent No. 6470087 to Heo et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P Chau whose telephone number is (703)305-0683. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

November 17, 2003


FORRESTER W. ISEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2644